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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/642,590	08/19/2003	Hiroyuki Kinugawa	Q76939	2939
23373	7590	04/15/2004	EXAMINER	
SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			RIDDLE, KYLE M	
			ART UNIT	PAPER NUMBER
			3748	

DATE MAILED: 04/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/642,590	Applicant(s) KINUGAWA, HIROYUKI	
	Examiner Kyle M. Riddle	Art Unit 3748	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5-10 is/are rejected.
- 7) ☒ Claim(s) 4 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>08192003</u> . | 6) <input type="checkbox"/> Other: ____  |

## DETAILED ACTION

### *Specification*

1. The disclosure is objected to because of the following informalities: Page 27, first full paragraph, line 5 of the paragraph, "sidably" should read --slidably--.

Appropriate correction is required.

2. The disclosure is objected to because it is replete with misspelling by the omission of the letter "e" in numerous words in the first three lines of each page and the last three lines of each page of the specification. Applicant's assistance is requested to correct these informalities. The same pattern of informalities appears in the abstract and claims and are listed below in detail as examples and to ensure clarity of the record.

- Page 44, line 1, Abstract title, "th" should read --the-- and "Disclosur" should read --Disclosure--;

- Page 44, line 2, "provid d" should read --provided-- and "dir ction" should read --direction--.

Appropriate correction is required.

### *Claim Objections*

3. Claims are objected to because of the following informalities:

- Page 41, line 1, "claim d" should read --claimed--;

- Page 41, claim 1, line 1 of the claim, "valv" should read --valve--;

- Page 41, claim 4, line 1 of the claim, "Th" should read --The--;

- Page 41, claim 4, line 2 of the claim, two "memb r" should both read --member--;

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- Page 42, line 1, "th" should read --the--, "dir ction" should read --direction--, and "ngaging" should read --engaging--;

- Page 42, claim 9, line 4 of the claim, "th" should read --the-- all three times within the same line, "s cond" should read --second--, and "relativ" should read --relative--;

- Page 43, claim 10, line 1 of the claim, "valv" should read --valve--.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-3, 5, 8, and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Noguchi et al. (U.S. Patent 5,826,552).

Re claims 1-3, 5, and 10, Noguchi et al. disclose a variable valve timing device comprising:

- an outer rotor 18 rotating synchronously with a crank shaft (column 4, lines 25-30);
- an inner rotor 22 fixedly mounted on one end portion of the cam shaft 12 for relative movement or rotation between the cam shaft 12 and the outer rotor 18 (column 4, lines 33-38);
- a locking member valve 44 slidably fitted in retracting bore 40 of outer rotor 18 and, when aligned in a predetermined position with received bore 48 of inner rotor 22, locks the relative rotation of the inner and outer rotors 22, 18 (column 5, lines 25-34 and Figures 2-4);

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- a piston 60 as a closing member slidably fitted axially in receiving bore 48 to eject or exclude the locking valve 44 against the urging force of spring 46 under the pressure of oil (hydraulically slidable) supplied to the receiving bore 48 (column 5, lines 37-44 and Figures 2-4);

- an engaging hole formed within receiving bore 48 between locking valve 44 and piston 60 (Figure 4B), the closure of the engaging hole creating contact between locking valve 44 and piston 60 resulting in allowed relative rotation of the inner rotor 22 with respect to the outer rotor 18 (column 6, lines 50-56 and Figures 3 and 4D).

Re claim 8, Noguchi et al. disclose some oil entering between the piston 60 and the locking valve 44 via passage 62 from intermediate passage 54a, the resulting oil pressure ejecting the locking valve 44 allowing relative rotation of the inner rotor 22 and the outer rotor 18 during low hydraulic pressure (column 6, lines 32-41 and Figure 4C).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 6-7, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Noguchi et al. in view of Kinugawa (U.S. Patent 6,443,112).

Noguchi et al. disclose a variable valve timing device comprising an outer rotor 18 rotating synchronously with a crank shaft, an inner rotor 22 fixedly mounted on one end portion of the cam shaft 12 for relative movement or rotation between the cam shaft 12 and the outer

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rotor 18, a locking member valve 44 slidably fitted in retracting bore 40 of outer rotor 18 and, when aligned in a predetermined position with receiving bore 48 of inner rotor 22, locks the relative rotation of the inner and outer rotors 22, 18, a piston 60 as a closing member slidably fitted axially in receiving bore 48 to eject or exclude the locking valve 44 against the urging force of spring 46 under the pressure of oil supplied to the receiving bore 48, and an engaging hole formed within receiving bore 48 between locking valve 44 and piston 60, the closure of the engaging hole creating contact between locking valve 44 and piston 60 resulting in allowed relative rotation of the inner rotor 22 with respect to the outer rotor 18. Noguchi et al. fail to disclose separate oil supply passages and control valve for the locking mechanism or positioning the mechanism between the most advanced and retarded rotational positions.

Kinugawa teaches a valve timing adjusting apparatus with a separate oil control valve 6 controlling a separate locking mechanism supply passage F3 that is different from the oil control valve 5 and controlling passages for providing relative rotation of the adjusting mechanism (column 8, lines 8-16 and Figure 1). Kinugawa also teaches multiple locations for the the locking pin between the maximum advancing and retarding positions (column 19, lines 11-34 and Figures 3, 5, 7, and 9). It would have been obvious to one having ordinary skill in the art at the time of the invention was made, to have utilized the teaching by Kinugawa in the valve timing adjusting apparatus of Noguchi et al., since the use thereof would have provided a more controllable separate locking/unlocking of the relative rotation device and more diverse locking locations depending on engine operational timing requirements and performance criteria.

***Allowable Subject Matter***

8. Claim 4 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

9. The IDS (PTO-1449) filed on 19 August 2003 has been considered. An initialized copy is attached hereto.

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure and consists of 2 patents.

- Sekiya et al. (U.S. Patent 6,276,322) disclose a locking mechanism where similar elements have the same linear expansion coefficients.

- Sekiya et al. (U.S. Patent 6,325,032) disclose a locking mechanism providing reduced wear and a bleed orifice.

***Communication***

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kyle M. Riddle whose telephone number is (703) 306-3409. The examiner can normally be reached on M-F (07:30-5:00) Second Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Denion can be reached on (703) 308-2623. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

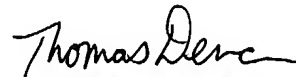
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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Kyle M. Riddle  
Examiner  
Art Unit 3748

kmr



THOMAS DENION  
SUPERVISORY PATENT EXAMINER  
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